## AMENDMENTS TO THE CLAIMS

1. (Original) A method of processing a substrate on a ceramic substrate heater in a process chamber, the method comprising:

forming a protective coating on the ceramic substrate heater in the process chamber prior to placing a substrate on the substrate heater, including:

(a) exposing the ceramic substrate heater to a metal-containing gas to deposit the metal, and

(b) exposing the ceramic substrate heater to at least one non-metal-containing gas to deposit the at least one non-metal,

wherein the protective coating comprises a surface portion for receiving a substrate, and wherein the surface portion is one of a non-metal layer or a combined metal/non-metal layer; and

processing at least one substrate on the coated ceramic substrate heater.

2. (Original) The method according to claim 1, wherein the protective coating comprises a combined metal/non-metal layer surface portion and the exposing in (a) at least partially overlaps the exposing in (b) to form the combined metal/non-metal layer surface portion.

3. (Original) The method according to claim 2, wherein the combined metal/non-metal layer surface portion is a metal oxide, metal silicide, metal nitride, or metal carbide.

4. (Original) The method according to claim 2, wherein the forming includes first, the exposing in (a) performed alone to form a first layer of the metal on the ceramic substrate heater, and then second, the exposing in (b) performed simultaneously with the exposing in (a) to form the combined metal/non-metal layer surface portion on the metal layer.

5. (Original) The method according to claim 1, wherein the protective coating comprises a non-metal layer surface portion and the forming includes first, the exposing in (a) performed alone to form a first layer of the metal on the ceramic substrate heater, and then second, the exposing in (b) performed simultaneously with the exposing in (a) to form an intermediate combined metal/non-metal layer on the metal layer, and then third, the exposing in (b) performed alone to form the non-metal layer surface portion on the intermediate combined metal/non-metal layer.

6. (Original) The method according to claim 5, wherein the intermediate combined metal/non-metal layer is a metal oxide, metal silicide, metal nitride, or metal carbide, and wherein the non-metal layer surface portion is silicon or carbon.

7. (Original) The method according to claim 1, wherein the protective coating comprises a non-metal layer surface portion and the exposing in (a) is performed first to form a first layer of the metal on the ceramic substrate heater, and the exposing in (b) is performed sequentially second to form the non-metal layer surface portion on the first metal layer.

8. (Original) The method according to claim 7, wherein the surface portion of the protective coating includes a first surface portion for receiving a substrate and a second surface portion that remains exposed when the first surface portion receives a substrate, and wherein the processing includes placing the at least one substrate on the first surface portion of the non-metal layer surface portion of the protective coating and thereafter subjecting the substrate to a process during which a second layer of the metal is deposited on the second surface portion of the non-metal layer surface portion.

9. (Original) The method according to claim 8, further comprising:

removing the processed substrate from the process chamber; and

again exposing the coated ceramic substrate heater to the at least one non-metal-containing gas to deposit an additional non-metal layer on the second metal layer and on the first surface portion of the non-metal layer surface portion.

10. (Original) The method according to claim 9, further comprising repeating the processing, removing, and again exposing until a desired number of substrates having been processed.

11. (Original) The method according to claim 7, wherein the non-metal layer surface portion is silicon or carbon.

12. (Original) The method according to claim 1, wherein the ceramic substrate heater comprises at least one ceramic selected from the group consisting of AlN, $Al_2O_3$, SiC, and BeO.

13. (Currently Amended) The method according to claim 1, wherein the metal of the protective coating comprises ~~W,~~ Re, Ru, ~~Ti,~~ Ta, Ni, ~~Mo,~~ or Cr or a combination of two or more thereof.

14. (Currently Amended) The method according to claim 1, wherein the metal-containing gas comprises at least one metal-carbonyl gas selected from the group consisting of $Ru_3(CO)_{12}$, $Ni(CO)_4$, ~~$Mo(CO)_6$,~~ $Co_2(CO)_8$, $Rh_4(CO)_{12}$, $Re_2(CO)_{10}$, and $Cr(CO)_6$.

15. (Original) The method according to claim 1, wherein the non-metal-containing gas comprises a silicon-containing gas, a hydrocarbon gas, an oxygen-containing gas, or a nitrogen-containing gas or a combination of two or more thereof.

16. (Original) The method according to claim 1, wherein the non-metal-containing gas comprises $SiH_4$, $Si_2H_6$, $SiCl_2H_2$, $Si_2Cl_6$, an alkane, an alkene, an alkyne, $O_2$, $O_3$, $CO_2$, CO, $N_2$, NO, $NO_2$, or $N_2O$ or a combination of two or more thereof.

17. (Canceled)

18. (Currently Amended) The method according to claim ~~1~~35, wherein the metal-containing gas comprises $Ru_3(CO)_{12}$ and the non-metal-containing gas comprises $SiH_4$.

19. (Original) The method according to claim 1, wherein the exposing in (b) comprises a first exposure to a first non-metal-containing gas, and a second exposure to a second non-metal-containing gas.

20. (Original) The method according to claim 19, wherein the metal-containing gas comprises $Ru_3(CO)_{12}$, the first non-metal-containing gas comprises $SiH_4$, and the second non-metal-containing gas comprises $O_2$.

21. (Original) The method according to claim 19, wherein:

the first non-metal-containing gas is an oxygen-containing gas or a nitrogen-containing gas and the first exposure occurs either simultaneously with or sequentially after the exposing in (a) to form a combined metal/non-metal underlayer that is a metal nitride or a metal oxide, and

the second non-metal-containing gas is a silicon-containing gas or a carbon-containing gas and the second exposure occurs after the first exposure to form the non-metal layer surface portion that is silicon or carbon on the combined metal/non-metal underlayer.

22. (Original) The method according to claim 19, wherein:

the exposing in (a) is performed before the exposing in (b) to form a layer of the metal,

the first non-metal-containing gas is a silicon-containing gas,

the second non-metal-containing gas is an oxygen-containing gas or a nitrogen-containing gas, and

the first exposure occurs either before or simultaneously with the second exposure to form the non-metal layer surface portion that is a silicon oxide or a silicon nitride on the metal layer.

23. (Original) The method according to claim 1, wherein the forming further comprises heating the substrate heater to between about 100°C and about 800°C.

24. (Original) The method according to claim 1, wherein the forming further comprises heating the ceramic substrate heater to between about 300°C and about 600°C.

25. (Original) The method according to claim 1, wherein the processing comprises

providing a substrate to be processed on the coated ceramic substrate heater;

performing a process on the substrate by exposing the substrate to a process gas; and

removing the processed substrate from the process chamber.

26. (Original) The method according to claim 25, further comprising forming a non-metal layer on the coated ceramic substrate heater following the removing, and repeating the processing at least once.

27. (Original) The method according to claim 26, wherein the non-metal layer comprises Si.

28. (Original) The method according to claim 25, wherein the performing comprises carrying out at least one process selected from the group consisting of a TCVD process, an ALD process, a PECVD process, and an etching process.

29. (Original) The method according to claim 25, wherein the performing comprises depositing a metal layer on the substrate.

30. (Original) The method according to claim 1, further comprising repeating the forming and processing without cleaning the substrate heater.

31. (Original) The method according to claim 1, further comprising cleaning the substrate heater and repeating the forming and processing.

32. (Original) A method of processing a substrate on a ceramic substrate heater in a process chamber, the method comprising:

forming a Si/Ru protective coating on the ceramic substrate heater in the process chamber, including:

exposing the ceramic substrate heater to $Ru_3(CO)_{12}$ to deposit a Ru layer on the ceramic substrate heater, and

thereafter, exposing the ceramic substrate heater to $SiH_4$ to deposit a Si layer on the Ru layer; and

processing at least one substrate on the coated ceramic substrate heater, including:

providing a substrate to be processed on the coated ceramic substrate heater,

performing a Ru deposition process on the substrate by exposing the substrate to $Ru_3(CO)_{12}$; and

removing the processed substrate from the process chamber.

33. (Currently Amended) The method according to claim ~~23~~32, wherein the exposing of the ceramic substrate heater to the $SiH_4$ partially overlaps the exposure to the $Ru_3(CO)_{12}$ to form an intermediate Ru silicide layer.

34. (Currently Amended) The method according to claim ~~23~~32, further comprising forming a Si layer on the protective coating following the removing, and repeating the processing at least once.

35. (New) A method of processing a substrate on a ceramic substrate heater in a process chamber, the method comprising:

forming a protective coating on the ceramic substrate heater in the process chamber prior to placing a substrate on the substrate heater, including:

(a) exposing the ceramic substrate heater to a metal-containing gas to deposit the metal, wherein the metal-containing gas comprises a Ru-containing gas and the non-metal-containing gas comprises a silicon-containing gas, and

(b) exposing the ceramic substrate heater to at least one non-metal-containing gas to deposit the at least one non-metal,

wherein the protective coating comprises a surface portion for receiving a substrate, and wherein the surface portion is one of a non-metal layer or a combined metal/non-metal layer; and

processing at least one substrate on the coated ceramic substrate heater.